



ST. JOHNS RIVER MODEL UPDATE

Tony Janicki and Steven Davie
Division of Environmental Assessment and Restoration
Florida Department of Environmental Protection

GoTo Webinar | March 12, 2024



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Attendee Participation

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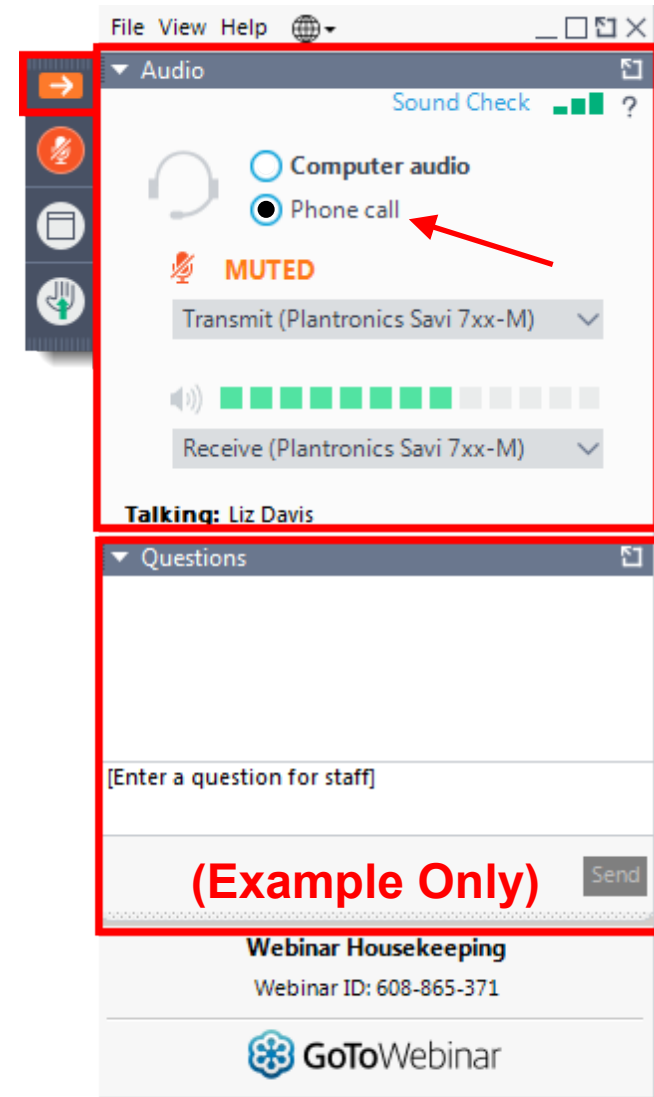
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Submit questions and comments via the Questions panel.

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Note: Today's presentation is being recorded and will be provided on the FTP after the webinar.





AGENDA

- Project Background.
 - Project Team.
 - Overview of Project.
- Project Schedule.
- Data Sharing and Knowledge.
 - Current Data Inventory.
- Model Details/Workflow.
- Current Status.
- Stakeholder Coordination.
- Questions.

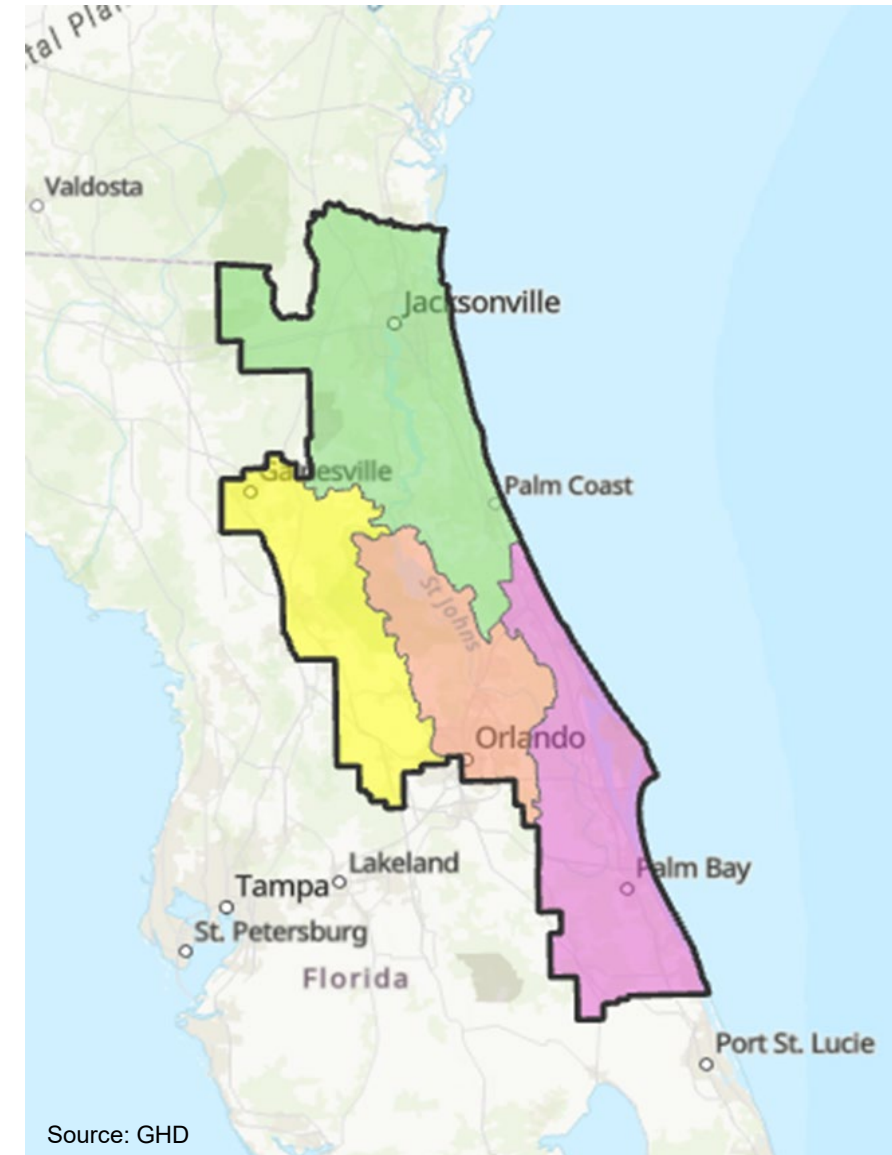




PROJECT BACKGROUND: OVERVIEW

Project overview:

- Sponsors:
 - Florida Department of Environmental Protection (DEP).
 - St. Johns River Water Management District (SJRWMD).
- Introduction of the consulting team:
 - Environmental Science Associates (ESA).
 - GHD.
 - Wildwood Consulting.
- Phases of the project:
 - Phase I.
 - Phase II.





PROJECT SCHEDULE

April 2024:
Modeling
Document/Quality
Assessment (QA)
Plan

July 2025:
EFDC Model

March 2025:
HSPF Model

June 2026:
WASP Model

HSPF: Hydrologic Simulation Program FORTRAN
EFDC: Environmental Fluid Dynamics Code
WASP: Water Quality Analysis Simulation Program



PROJECT SCHEDULE: CURRENT OPPORTUNITIES TO ENGAGE

Current - May 1, 2024:
HSPF Data Sharing
Comment and Review



Current – Aug. 1, 2024:
EFDC Data Sharing
Comment and Review



CURRENT DATA INVENTORY

Land Cover

Florida Land Cover Classification System (FLUCCS) 2014

Meteorological

NCDC, NEXRAD, Rain Gages and other local data from SJRWMD

Boundaries (Planning Units, Subbasins, etc.)

SJRWMD Geospatial Open Data

Water Quality Ambient Data

Impaired Waters Rule (IWR) Database, Run 63

Flow Data

USGS, DEP and SJRWMD

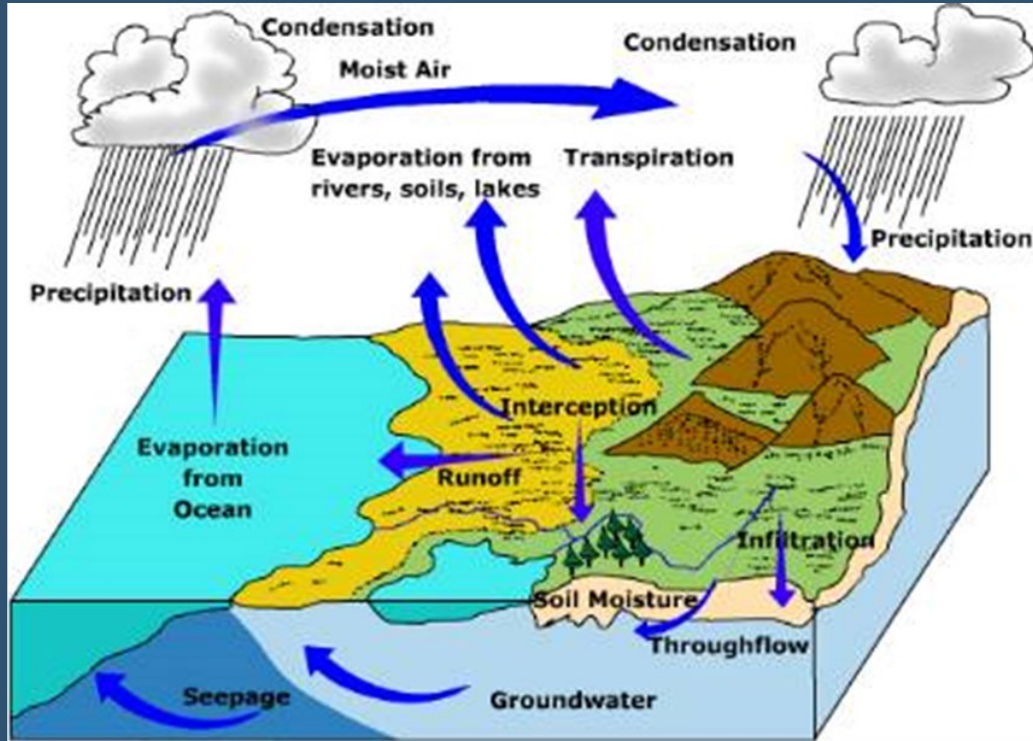
NCDC: National Climatic Data Center

NEXRAD: Next Generation Weather Radar

USGS: U.S. Geological Survey



HSPF WATERSHED MODEL



Source: Ritter, Michael E. *The Physical Environment: an Introduction to Physical Geography*.

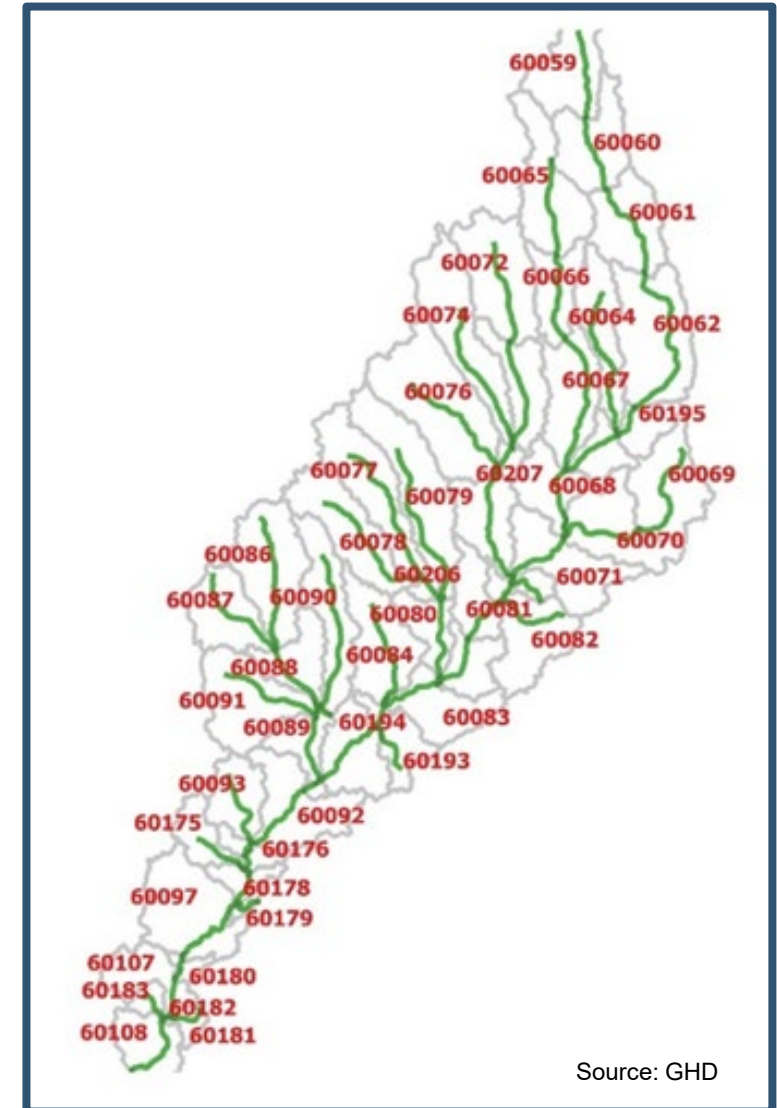
[This Photo](#) by Michael Ritter is licensed under [CC BY-SA](#)

- SJRWMD HSPF Models:
 - Calibrated for flow.
- Model will extend in time through 2023.
 - Updated meteorological data.
 - Point source flow data.
 - Re-calibrate flow.
- Pollutant Contribution from land surface will be added.
 - Total nitrogen (TN), total phosphorus (TP), carbonaceous biochemical oxygen demand (CBOD).
- Land Use Coverage will be updated to FLUCCS 2020.



WASP RECEIVING WATERBODY MODEL

- Implement U.S. Environmental Protection Agency's (EPA) WASP Model.
- Develop WASP model network consistent with HSPF Reach Network.
- Develop WASP Models for major basins and tributaries.
- Integrate the flows and loads simulated by HSPF to predict water quality conditions as a function of varying meteorological conditions.

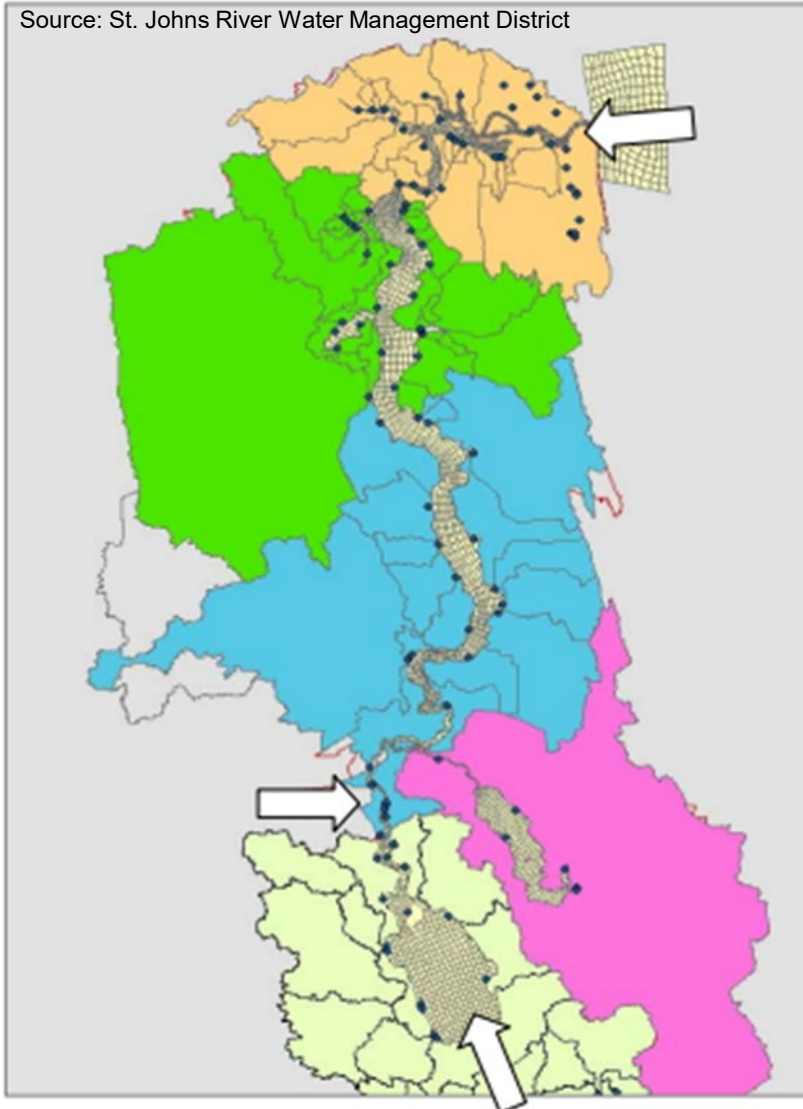


Source: GHD



EFDC HYDRODYNAMIC MODEL

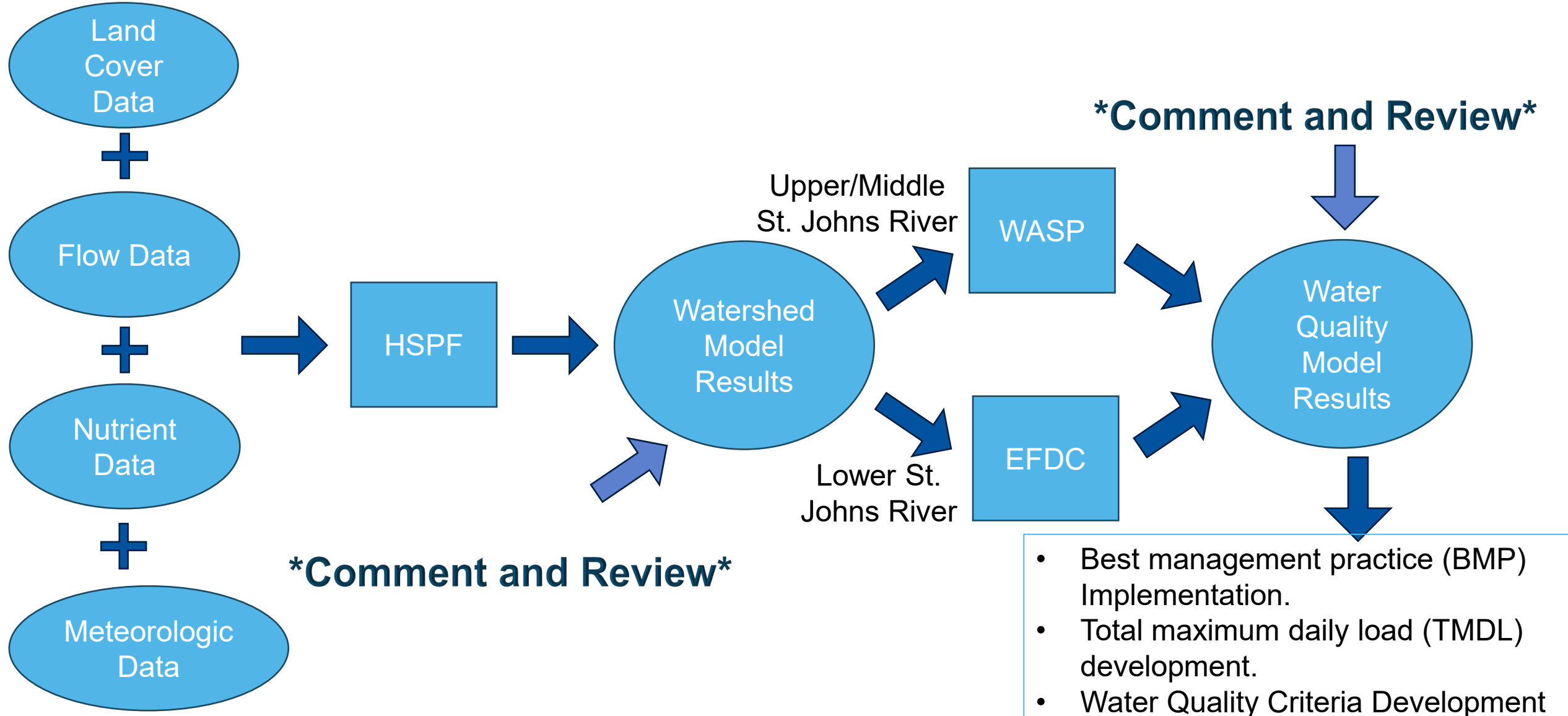
Source: St. Johns River Water Management District



- Evaluate SJRWMD version of EFDC.
 - Update to current version of EFDC.
- Extend EFDC through 2023.
- Investigate replacing current water quality model (CE-QUAL-ICM).
- Update flows and loads from HSPF/WASP models from the upstream basins.



MODELING WORKFLOW





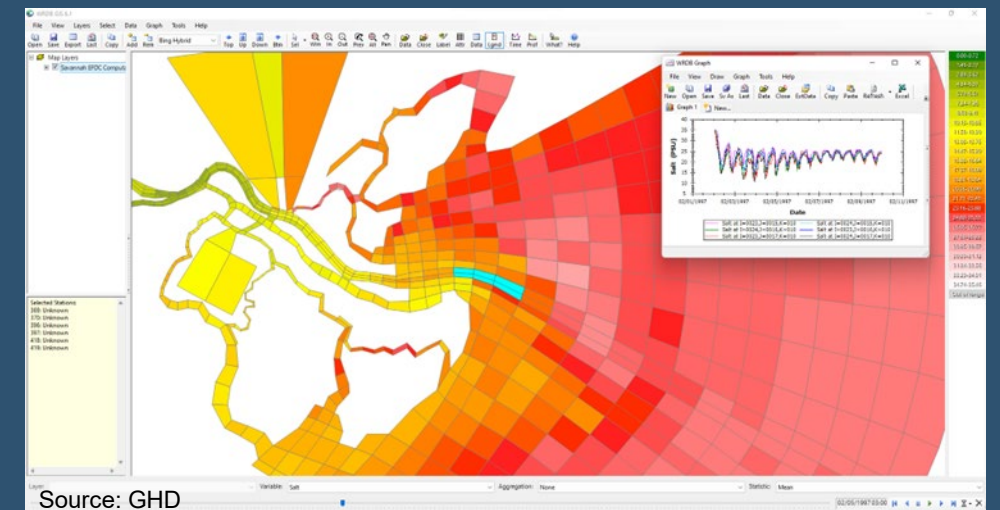
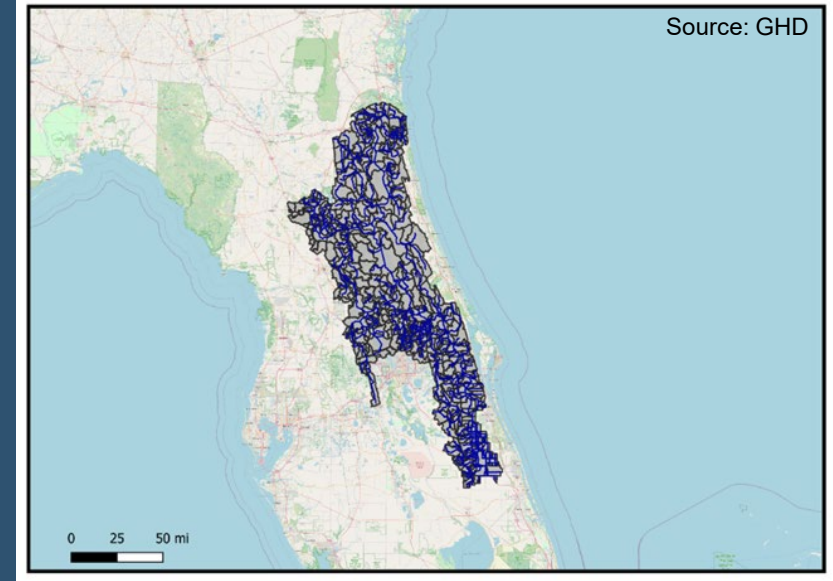
CURRENT STATUS

Working on Modeling Document/QA Plan

Updating Current HSPF Models

Developing a Web-Based Application
(Cloud Server/SQL Database/GeoServer)

SQL: Structured Query Language





STAKEHOLDER COORDINATION

- Periodic project updates will be sent via email.
- The project email list will be used for sending updates.
- To be added to the project email list, send your contact information:
 - Admin@WildwoodConsulting.net.
 - Or visit the website (QR code below), go to the “Contact” tab and enter your contact information.





DATA SHARING



- To share data, questions, or concerns, please contact StJohnsRiverData@ghd.com
- Data must:
 - Meet the requirements of DEP's Standard Operating Procedures (SOP).
- When sharing data, please include:
 - Name.
 - Organization/Company.
 - Role.

We will make every effort to include data which meet these standards. However, due to necessary consistency across districts and/or other concerns, not all provided data may be utilized.



RECAP

- Provide additional data for the HSPF Models by May 1, 2024.
- Provide additional data for the EFDC Model by Aug. 1, 2024.
- Sign up for project updates via:
Admin@WildwoodConsulting.net



Middle St. Johns River in Astor, Florida.

Source: T. Busby, personal photo.



QUESTIONS?

THANK YOU



Tony Janicki
Environmental Science Associates (ESA)
TJanicki@esassoc.com

Steven Davie
GHD
Steven.Davie@ghd.com

Moira Homann
Division of Environmental Assessment and Restoration
Department of Environmental Protection
Moira.Homann@FloridaDEP.gov